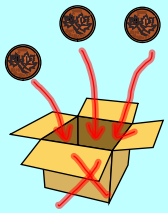
02 Review - Part 2

Algebraic Expressions
&
Solving Equations

A variable is a placeholder for some value.

You can think of it like a box that holds some value. We just use letters of the alphabet because that's much easier than drawing boxes or jars or bags.



What is $3\square + 2\bigcirc$ = ?

$= 3(3) + 2(2)$

$= 9 + 4$

$= 13$

A variable is a placeholder for some value.
To evaluate an expression with variables, substitute a given number in place of the variable. Don't forget to use brackets ().

if x = 2 and y = -3 then

$2x^2 - y =$

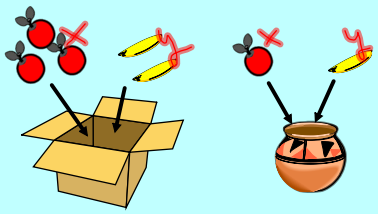
$= 2(2)^2 - (-3)$

$= 2(4) + 3$

$= 8 + 3$

$= 11$

To simplify an expression:
1. Expand any brackets
2. Collect <u>like terms</u>



2  + 3 

$= 2(3 \text{ x} + 2 \text{ y}) + 3(\text{x} + \text{y})$

$= (6 \text{ x} + 4 \text{ y}) + (3 \text{ x} + 3 \text{ y})$

$= 9 \text{ x} + 7 \text{ y}$

To simplify an expression:
1. Expand any brackets
2. Collect like terms

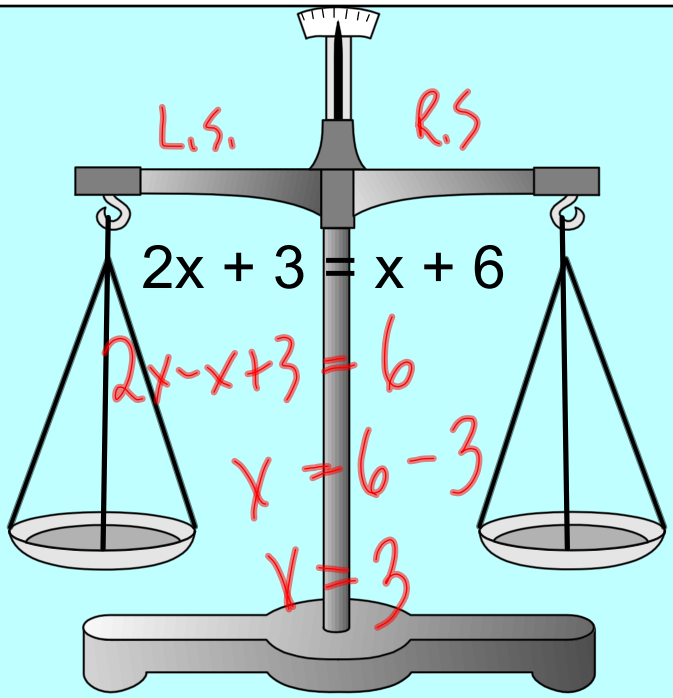
Like Terms have the same variables, and matching variables have the same exponent.

Use the distributive property to multiply a single term into a bracket.

$2(2x^2 + 3) - (-x^2 - 2x) - 5$

$= 4x^2 + 6 + x^2 + 2x - 5$

$= 5x^2 + 2x + 1$



An equation has an expression on each side of an equal sign.

To solve an equation, find the value that makes the left side (LS) equal to the right side (RS). This value is called the solution or root of the equation.

1. Expand (and simplify) each side
2. Isolate terms with variables on one side, constants on the other side.
3. Simplify like terms.
4. Solve for the unknown.

(a) $2x + 3 = x + 6$

(b) $y + 3(y - 2) = 2(3y + 4)$

$y+3y-6=6y+8$

$4y-6=6y+8$

$-2y=8+6$

$\frac{-2y}{-2}=\frac{14}{-2}$

$y=-7$

Assigned Work:

A-8: p.471 # 1abf, 2bc, 3, 4ac, 5cd, 6bc
A-9: p.472 # 1def, 3